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CHALLENGES TO TOYOTA CAUSED BY RECALL PROBLEMS, SOCIAL NETWORKS AND DIGITISATION

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ABSTRACT

The recent recall problems that shook Toyota raised questions about the company's openness with the public. Media attention and the intervention by governments in Toyota's largest markets in North America, Europe, China, and Japan kept Toyota's management in the spotlight. The crisis also exposed the power of social media. Although authoritarian regimes can control social media, public companies cannot. They have to live with it by either countering effectively when a crisis begins to brew or suffering the consequences when it grows out of proportion. If Toyota manages social media strategically, can it overcome the recall debacle and protect the reputation it has built over decades as the top-quality automaker in the world? What challenges does the increasingly digitalised auto industry present to Toyota? These are the main subjects of this paper.

Keywords: social media, crisis management, Toyota, recall, social networks, Facebook, Twitter, digitisation

INTRODUCTION

Social media, including social networking sites (SNS) such as Facebook and Twitter, have added new meaning to the spread of news and information. Whereas traditional information channels, such as newspapers, radios and TV, are one-way mediums, the dawn of the Internet and social media has made communication a two-way medium. The lack of official control, supervision and regulation has fuelled a social media frenzy, which has proven to be an effective method of rallying crowds for any significant (or even insignificant) issue.

The recent bans on Facebook and other types of social media by certain governments are proof that social media cannot be ignored. Although authoritarian governments can resort to such drastic methods, public corporations cannot afford to do so. Corporations have no other option than to live with social media phenomena, either countering them effectively when a crisis begins to brew or suffering the consequences when it grows out of proportion.

In this context, it is interesting to explore how recall-troubled Toyota has handled social media and what options are available for Toyota to prevent the situation from going out of control and harming the worldwide reputation as a top-quality automaker that the company has worked for decades to develop.

Toyota's recall exposed some "digitisation" in the automobile industry as well. Digital technology in the music and video industries and its exploitation by Apple in the Internet and social media essentially pushed Sony, an old industry heavyweight, to the sidelines (Rajasekera, 2010; Chang, 2008). Could the same thing happen to Toyota? Could a newcomer exploit digitisation in automobiles, in conjunction with the Internet and social media, to dethrone an established giant such as Toyota?

The Recall Crisis at Toyota: Rise and Fall

Since its founding in 1937, Toyota Motor Corporation has strived to build quality automobiles. Capitalising on the Japanese concept of *Kaizen*, or continuous improvement, and Just in Time (JIT), the company has built a worldwide reputation for manufacturing affordable quality automobiles. Considered a conservative company, Toyota capitalised on quality and competed directly with established and well-known brands in Europe, the U.S. and elsewhere (Morgan & Liker, 2006; Magee, 2007).

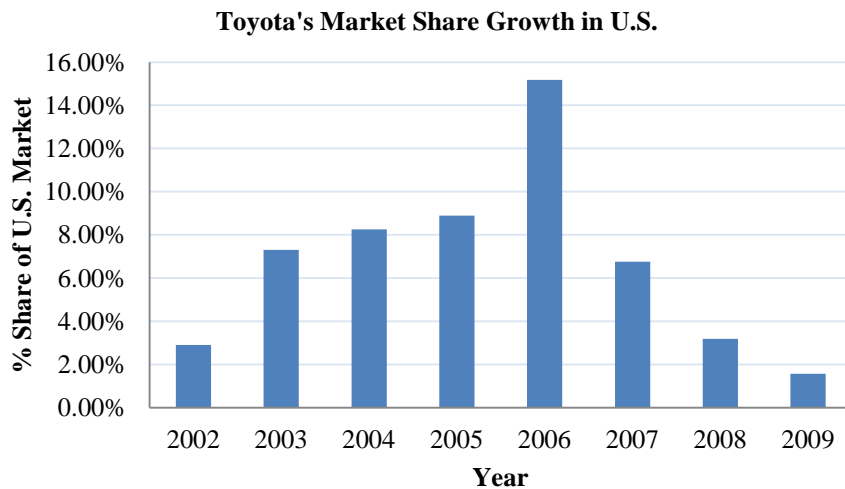


Figure 1. In the last decade, Toyota rapidly increased its market share
(Source: WardsAuto, 2010)

After its entry to the U.S. market in 1957, it took Toyota more than 40 years to take a 10% share of its most important U.S. market. Toyota has seemed more focused on rapid growth since the beginning of the last decade (Figure 1). Almost 50 years after entering the U.S. market, the Japanese company surpassed Ford and Chrysler in 2007 to become the second most popular automotive brand in America. The year 2007 was also a landmark year for Toyota because the company earned US\$15.1 billion in profits, the largest amount in the company's history and the largest ever for a Japanese company.

The next year, 2008, was a recession year worldwide, and automobile sales dropped everywhere. However, Toyota managed to increase its global market share and became the largest automaker in the world, a record held by GM for 77 years (Time Magazine, 2010a).

Although Toyota became the world's largest automaker, the No. 1 spot did not bring much solace to the company. After reporting a record profit the year before, the global recession of 2008 brought bad news to Toyota: the company reported the first loss, US\$1.5 billion, in its corporate history.

Financial loss aside, the larger shock for Toyota was the seemingly unstoppable stream of recalls that accompanied a streak of emotionally charged accidents, including 52 deaths allegedly attributed to a sudden acceleration problem (CBS News, 2010).

Recalls are nothing new for the automotive industry, especially in the U.S., where the first recall law went into effect in 1966. Over a span of approximately 40 years, 400 million motor vehicles, including cars, buses and motorcycles, were recalled in the U.S. alone, according to U.S. government data (National Highway Traffic Safety Administration [NHTSA], 2010). Thus, approximately 10 million vehicles, on average, are recalled every year for various reasons. What made the Toyota case different was the significance of the image that the company had produced for itself over the years and the damage to the perceived notion that the name Toyota meant quality.

It was almost 50 years ago, in 1961, that Toyota addressed the importance of product quality in its adoption of "Total Quality Control" as a way to compete against well-established car manufacturers (Toyota Motors Corporation, 1961; Ohno, 1988). Damage to the reputation that Toyota had built since that time stunned the general public; especially the Japanese, for whom Toyota is the commercial face that proudly represents the country to the outside world.

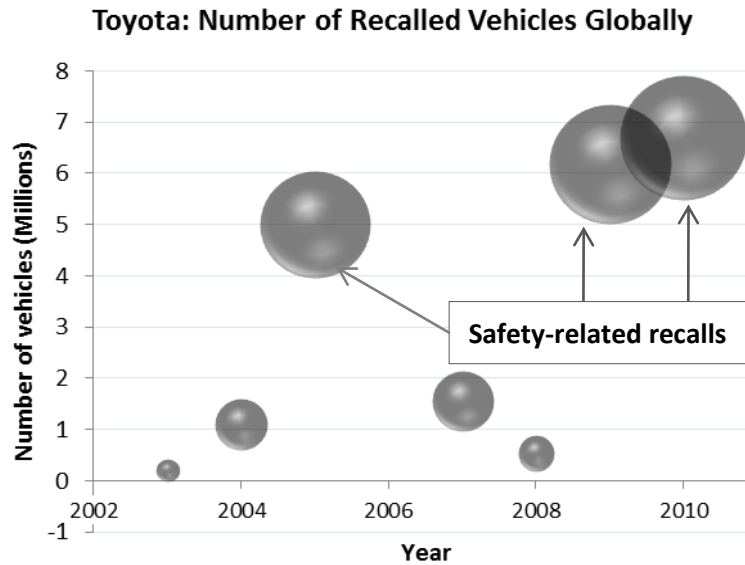


Figure 2. Sudden jump in Toyota's safety-related recalls
(Source: Minto, 2010; author's research)

The vehicle recall law divides recalls into two categories depending on the type of defect: a *defect related to safety* (one that can cause injury or death) and a *defect not related to safety* (such as a defective radio or air-conditioning system). The defects in Toyota vehicles that allegedly caused a number of deaths were related to safety and thus are considered serious (Figure 2). The unprecedented media coverage around the world was due to Toyota's brand name, its newly acquired title as the "No. 1 automaker in the world," and its rather lethargic response time to the incidents, some of which reportedly happened several years earlier.

On 21 January 2010, media around the world began presenting the stunning news of Toyota's recall of 2.9 million vehicles in addition to the 3.9 million recalled just a few months earlier. The reaction from all corners, including Toyota's own customers, the general public, politicians, and the financial markets, was unprecedented in Toyota's history (Figure 3). The total number of Toyota's recalls related to the serious safety defect connected to sudden acceleration would eventually climb to 8.6 million globally (Minto, 2010; CNN Online, 2010).

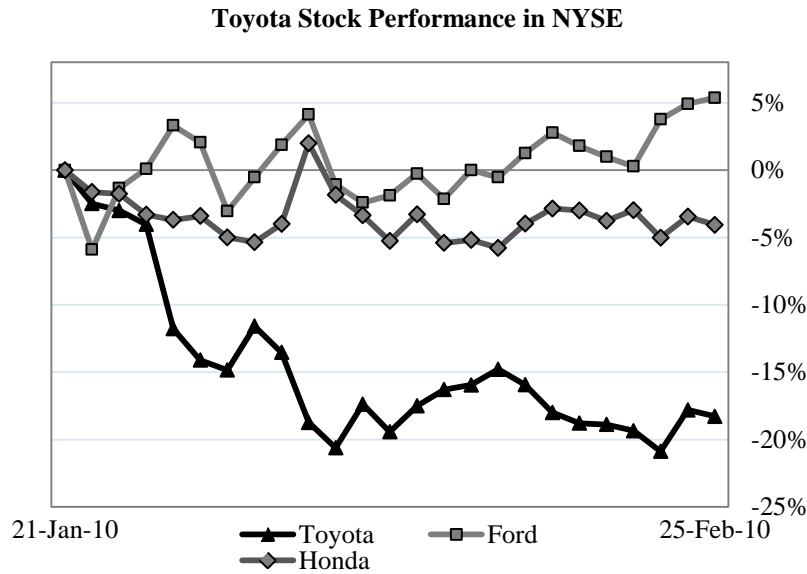


Figure 3. Recalls cost Toyota 20% of market value
(Source: NYSE [New York Stock Exchange], 2010)

Toyota, the company that made "Total Quality Control," "Quality Circles" and the "Toyota Way" mantras for any CEO, suffered a severe setback to its long-cultivated image.

In the U.S., where recalls of all types, from drugs to baby food to dog food, were nothing new, the media were quick with sensational stories linked to the now-infamous "sudden acceleration" problem.

With the Internet and social media such as Facebook and Twitter in full force, the negative news spread at unprecedented speed to Europe, China, and around the world, including Toyota's home market of Japan. Toyota may be facing the greatest challenge to its future. The consequences could be severely damaging unless Toyota reacts prudently.

WHAT TOYOTA HAS TO PROTECT

The world's automobile industry is undergoing historic changes. In the U.S., the major story is the bankruptcy of two of the "Big Three" automakers amid a historic recession; both GM and Chrysler are operating under U.S. government control. For decades, these two companies, along with Ford, defined America's manufacturing prowess. However, almost half a century since its entry to the U.S.

market, Toyota had become the top auto manufacturer globally and was on the verge of becoming the market leader in the U.S. by overtaking GM.

The auto industry has become extremely competitive, with new low-cost automobile manufacturers, such as Chery and Tata, entering the scene from China and India, respectively. Korea's Hyundai has built new factories in the U.S. and is competing aggressively with the established Japanese automakers (CBS News, 2010).

With significantly decreased sales due to the global recession, there is no room for any automaker, no matter how well positioned it has been, to make a mistake. Toyota's position as the global leader means that it has the most to lose from a recall as severe as the one that just occurred.

In the U.S., where hordes of lawyers are waiting eagerly to help victims or their families against Toyota, financial and punitive damages may be severe.

The usual apologies characteristic of Japanese companies can only go so far. As soon as the large recall of 2.3 million vehicles was announced in January 2010, Toyota ordered dealers to temporarily suspend the sales of eight models involved in the recall for a sticking accelerator pedal. Moreover, to maintain a balance of inventory, several factories had to be closed for specific periods.

Nonetheless, the greatest challenge for Toyota is to maintain the public trust. Voluntary recalls, if conducted in a timely manner, can help to boost trust in a company, as was the case in previous Toyota recalls. However, the situation was different this time because the company was forced by the U.S. government, which had received a significant influx of complaints. This forced recall did not create a positive image for Toyota's reputation, which had been created meticulously over several decades through a carefully planned strategy and public relations campaigns.

Since the days of so-called "Japan Bashing" in the U.S. during the 1980s, Toyota had endeavoured to create an image of an all-American company by designing and building its cars in the American heartland. Toyota's factories provide direct employment to 35,000 Americans and indirect employment to approximately 115,000 Americans through its 1,400 dealerships, according to company information (Toyota USA, 2010a). Over a 50-year period, Toyota claims to have invested US\$17 billion in the U.S., and its dealerships have invested another US\$15 billion. Toyota has aggressively promoted "social contribution activities that help strengthen communities and contribute to the enrichment of society" not only by itself but also through its suppliers and dealer networks (Toyota Motors Corporation, 2009).

Toyota has enormous brand value in the U.S. The reputed JD Power often ranks Toyota vehicles near the top in terms of quality. Even in its most recent ranking, Toyota received four first-place awards, more than any other automotive brand. Furthermore, the U.S. is Toyota's most profitable overseas market. Consequently, there are high stakes for Toyota if the recall is not handled carefully.

CRISIS MANAGEMENT

Since its founding in 1933, Toyota has weathered numerous crises. Although the present crisis did not force the resignation of Toyota's president, previous situations have led to the downfall of the company's upper management; for example, the founding president, Kiichiro Toyoda, resigned in 1950 to take responsibility for a labour dispute and sagging sales during a severe Japanese recession (Hosoda, 2009; Magee, 2007). Another crisis, Toyota's first corporate loss since the 1950 crisis, forced the departure of the then-president Katsuaki Watanabe, bringing Akio Toyoda, the current president, to the top post at Toyota.

With only one year of job experience as president, Akio Toyoda, armed with an MBA from a U.S. business school, faced perhaps the most difficult task in his business career when he was called to testify before the U.S. Congress on 23 February 2010. Already under fire by the U.S. media for not apologising early or sufficiently, his performance, broadcast live around the world, was a defining moment for Toyota and for corporate Japan. Did he apologise sufficiently? Was his performance sincere? Did it look like he was trying to conceal something? The verdict may be yet to come because the response is not delivered only by TV or newspapers.

In a survey conducted by the TV broadcaster CBS News in the U.S. following Mr. Toyoda's testimony, the public did not rate Toyota's explanation very positively: overall, only 27% believed that Toyota was telling the truth, and almost 50% said that Toyota was hiding something (CBS News, 2010).

In a case reminiscent of the Toyota crisis, Audi, the high-end German automaker, had to manage a recall catastrophe in 1986 caused by sudden acceleration of its automobiles sold in the U.S. Of course, the Internet was non-existent at that time, and television was the most prominent media. It was believed that Audi did not handle the media properly, and the public became distrustful of the company. It took fifteen long years for Audi to improve its sales to the level prior to the recall (Figure 4).

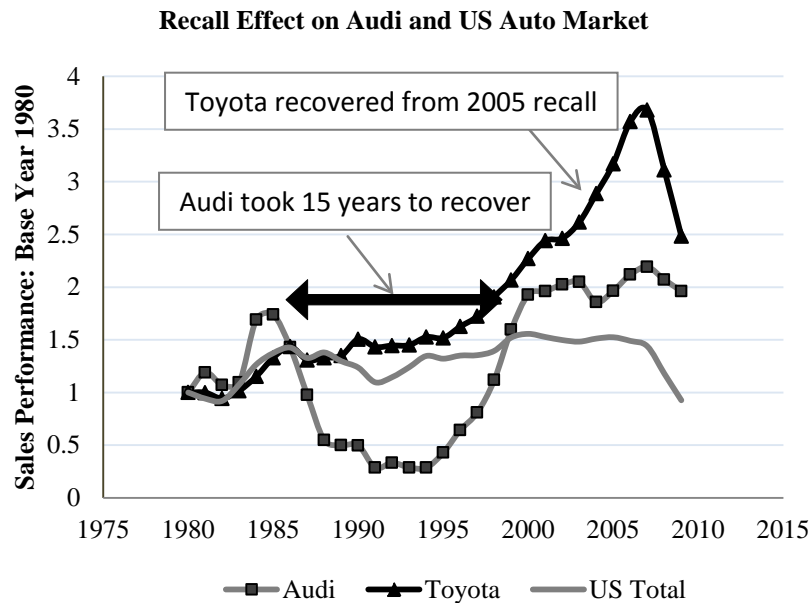


Figure 4. Audi took 15 years to recover from U.S. recall
(Source: WardsAuto, 2010; author's research)

Toyota is quite a different company compared to Audi. Toyota is well established in the U.S. market and has a loyal customer base in the millions. With thousands of Americans designing and building automobiles within the U.S., Toyota has cultivated a loyal following that includes some key politicians from the heartland. In fact, several of these politicians came forward during this crisis to tone down the U.S. government's outcry against Toyota's allegedly slow response.

The media itself has undergone dramatic changes since the Audi debacle in 1986. With the explosion of the Internet, media has become much more interactive. Social media, such as Facebook and Twitter, have demonstrated that people rely on them during crises. As a corporate utility, social media is an excellent way to disseminate company messages to the public (Qualman, 2009). Alternatively, social media, if properly used, is a way to keep an eye on the public mood when a significant issue occurs that affects a large number of people, such as the present recall, which raised emotions among many of Toyota's customers.

POWER OF SNS

Social networking sites, or SNSs, are web portals that allow users to become members and create their own profiles. SNSs also allow members to form

relationships. Members can post and share messages, photos, and videos instantly, and members have the option of making these postings available only to the member's friends or to general members of the SNS (Knoke & Yang, 2007).

Social networking sites can be used as community-based Web sites, online discussion forums, chat-rooms, and spaces to discuss a certain social topic. One recent example in which SNSs were cited as playing a critical role is the so-called "Arab Spring," which saw many entrenched regimes in the Arab world fall due to popular uprisings fuelled by social media (Ghannam, 2011).

With more than 800 million active users around the world, Facebook is the most dominant SNS in existence today. If Facebook were a country, it would be the third most populated in the world, behind only China and India (<http://www.insidefacebook.com>). Facebook originated in the U.S. in 2004 and has grown dramatically. With more than 150 million active users, the U.S. is its largest customer base. Non-English-speaking countries, such as Indonesia, Turkey, Mexico and Brazil, each have more than 25 million active subscribers to Facebook (<http://www.insidefacebook.com>). Fearing the power of Facebook to gather crowds, some countries have censored access to Facebook.

Other SNSs that have gained wide popularity are YouTube and Twitter. YouTube allows videos to be shared. Owned by Google, it is said that YouTube receives more than 3 billion views per day, and close to 50 hours of videos are uploaded by members every minute (Henry, 2011). Twitter, which originated in the U.S. in 2006, has over 300 million active users worldwide. Twitter is an SNS for short messaging and has become quite popular in the case of disasters, such as earthquakes, when regular phone lines are disrupted (Sakaki, Okazaki, & Matsuo, 2010).

With the prominent role of SNSs as media where any popular topic can galvanise a movement, it would be wise for Toyota, with its large customer base worldwide, to consider using it.

TOYOTA'S SNS STRATEGY

With manufacturing operations in 27 countries and a dealer network in 170 countries, Toyota is a giant organisation. In any large organisation, media releases for newspapers, television, or SNSs such as Facebook, Twitter, or YouTube must be coordinated carefully to prevent public confusion. Indeed, Toyota seems to have realised the importance of SNSs early on. As soon as the recall crisis began receiving media attention, Toyota quickly put together an "Online Newsroom"

and a "social media strategy team" to coordinate all the media releases from different organisations of the company, such as public relations, customer services and dealers (Toyota USA, 2010b).

The SNS sites Toyota is operating include the following:

1. Facebook: www.facebook.com/toyota
2. Twitter feeds: www.twitter.com/TOYOTA
3. YouTube: www.youtube.com/toyota
4. YouTube USA: www.youtube.com/user/ToyotaUSA
5. Pressroom Toyota: www.pressroom.toyota.com

In addition to Toyota's own efforts, anyone interested in expressing an opinion has the option of using any SNS media to exchange opinions. On Facebook itself, the author found ten active anti-Toyota social groups (more detail later in this section).

Reasoning that the company had not had a major backlash from its customers, especially in the U.S., where media was providing sensational coverage around the clock, Toyota stated that it had increased the number of customers on its Facebook page. It is true that Toyota fans to this SNS site increased by approximately 10% monthly. However, all of the other major U.S. brands had also been adding fans to their Facebook SNS sites (Figure 5).

Toyota on Facebook: Growth of Number of Fans

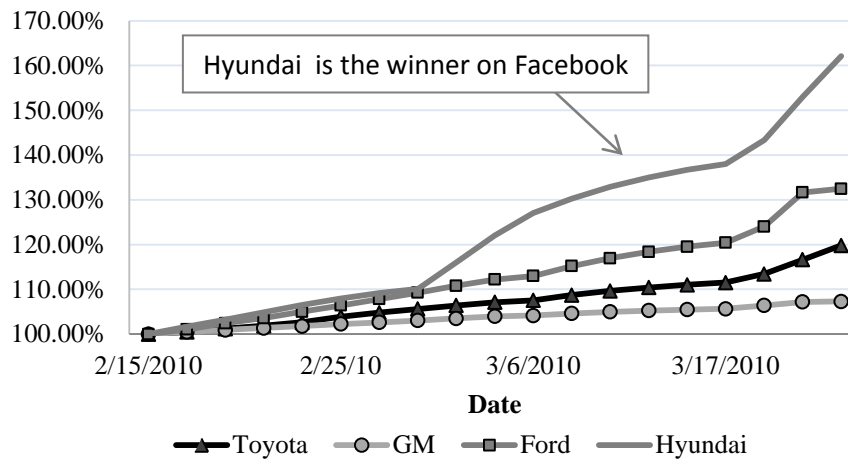


Figure 5. Ford and Hyundai adding fans faster on Facebook
(Source: <http://www.insidefacebook.com>; author's research)

In terms of the number of fans, GM is the leader on Facebook, followed by Ford, with Toyota at number three. However, the up-and-coming Korean automaker Hyundai is adding fans at the fastest rate. Thus, Toyota's claim that it does not observe customers losing faith or abandoning the company may be a premature judgment.

A key advantage of tapping into SNS is that a company can gather nearly real-time information about customers' feelings or complaints. According to a recent study, consumers use SNS when making decisions to buy automobiles (Chen, Fay, & Wang, 2011). However, the automobile industry in general has not significantly used SNSs as major communication media (MH Group, 2009), with the exception of fan clubs. A Toyota fan club, such as the one on Facebook, may not reflect all sides because the people who join the club are likely to already have a positive opinion about the brand or the company.

In fact, the recall process produced quite a few SNS groups attacking Toyota. The company may want to periodically tap into such groups to follow up on their messages. On Facebook itself, one can find more than ten such SNS groups, with revealing names such as "*anti-Toyota*," "*anti-Toyota Prius Group!*," and "*anti-Prius movement*" (Facebook, data on 26 May 2010). However, the total number of members of these groups is quite small, less than 1% of the number on Toyota's official Facebook SNS. Toyota may be concerned about the growth of the membership of these SNSs and the rate at which members post messages as well as the content of these messages.

One SNS site that was in operation well before the current round of recalls threatened Toyota is a public site called PRIUSchat (<http://priuschat.com/>). It is interesting to observe the traffic and the number of SNS groups on this site (Figure 6).

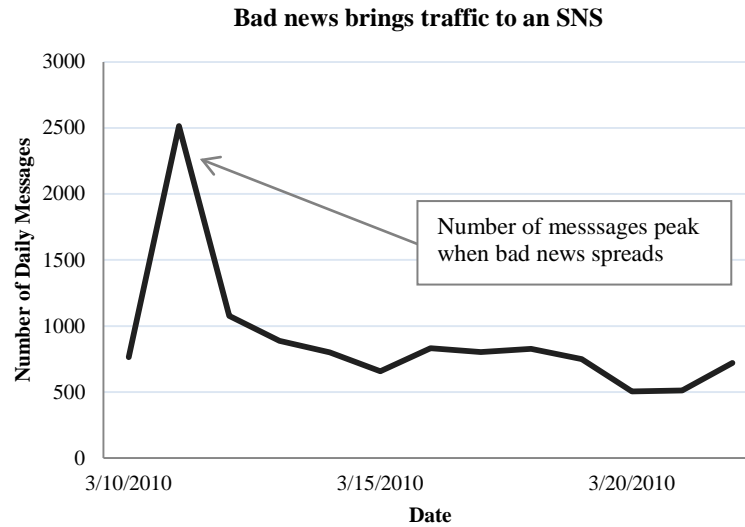


Figure 6. Number of messages increases with bad news
(Source: <http://priuschat.com/>; author's research)

The peak observed in the traffic line on this exhibit is the result of a sudden recall announcement associated with one of Toyota's most popular hybrid models, the Prius. A careful analysis of these messages can explain the seriousness of this concern.

LONG-TERM EFFECTS OF SNSs ON TOYOTA

A comparison of traffic to Toyota's SNS site and anti-Toyota sites on Facebook, as explained in the previous section, reveals that Toyota strategically managed its SNS media with regard to the current recall. However, associated problems with the recall have brought to light a more serious threat that is directly related to the digitisation of the automobile (Figure 7).

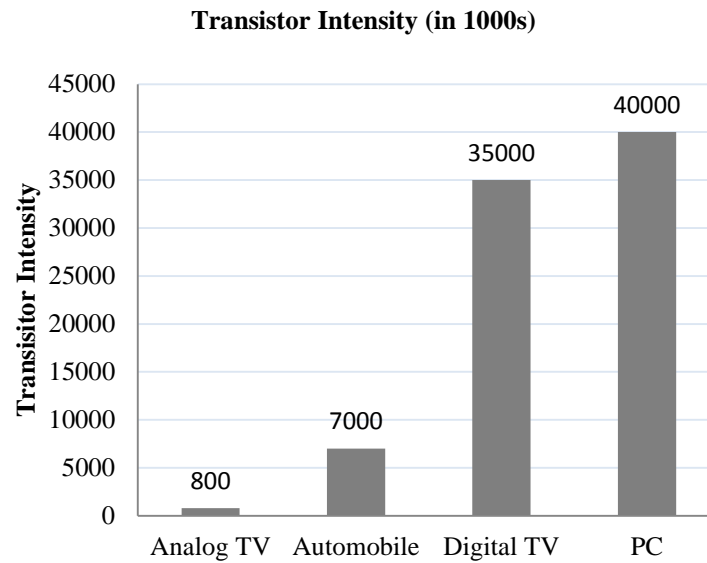


Figure 7. Automobiles are increasingly becoming digitised
(Source: Chang, 2008; Whitfield, 2002; author's research)

With the advances of the computer, automobile manufacturers around the world adopted many computerised methods to control and optimise the function and performance of their vehicles. This is very similar to what occurred when analog music devices gradually became digital. Sony was clearly the leader in analog music, but, by strategically exploiting SNSs and software, Apple came from nowhere to lead the digital music world. Could Toyota experience something similar?

Despite the long span of time that the recall problem has threatened Toyota, the cause of the problem or problems remains somewhat unclear. Blame has often been placed on a faulty electronic system. The National Highway Traffic Safety Administration has sought the help of NASA and the National Academy of Sciences in the U.S. to identify the problem (Time Magazine, 2010b).

A modern automobile has several systems that are controlled digitally by computer chips and software:

1. Electronic Throttle Control
2. Electronic Stability Control
3. Electronic Brake Control
4. Electronic Fuel Injection
5. Electronic Speed Control

Of course, there are many other functions, such as air conditioning and safety monitoring, that may be controlled by a computer mechanism. It is said that a modern automobile has, on average, 70 to 100 microprocessors and millions of lines of software code (Charette, 2009; ScienceDaily, 2010).

Although there are common electronic parts used across many manufacturers, some key control systems are proprietary. Whether a problem with these systems is hardware-related or software-related, customers have no choice but to take the whole vehicle to a dealer. In Toyota's sudden acceleration problem, some experts suggested that the problem could be a software problem. When such a software problem occurs in a modern electronic device, the solution can often be downloaded from the Internet quickly and easily. Although there are onboard diagnostic systems in vehicles, including Toyota's problem models, accessing them often requires taking the car to a dealership.

If a car behaves like a modern electronic gadget that is connected to the Internet – and automobiles are increasingly becoming web-enabled – the problems can be monitored to varying degrees in real time, and fixes can be accomplished cheaply and swiftly. This may present a threat to an established player such as Toyota.

In 2005, Toyota was embarrassed by several recalls. In Japan, the total number of recalls, including Toyota's, multiplied 40 times in comparison with 2001 levels, causing serious concern to the Japanese government. The government asked Toyota for an explanation, and the company promised to create a defect-reporting database so that it could monitor vehicle-related complaints from customers in a timely manner.

However, the current problems with Toyota revealed that either the company did not create a system to accumulate data into such a database or the company did not pay attention to the data gathered in this database in a timely manner.

In his testimony to the U.S. Congress, President Toyoda admitted that the company was growing too fast and that it may have focused on selling cars rather than paying sufficient attention to quality. According to a statement from a Toyota employee union, only 60% of vehicles are completely tested at the final stage, compared to 100% a few years ago. It is possible that Toyota did not pay sufficient and timely attention to customer complaints and may not have analysed the complaint database (if it had one) carefully.

For the company that pioneered Just-in-Time manufacturing, Toyota's response to the faults and problems was far from being JIT. This situation may present new opportunities for companies that have the means to observe customer behaviour almost in real time, such as through Facebook and Google.

Toyota's situation is similar to the situation at Sony. The company was growing rapidly in the areas of television and music CD players, but it did not realise the importance of the Internet and social media or that its customers were moving to such sites. Apple saw the opportunity and seized it, and the rest is history.

Whether a similar thing could happen to Toyota and whether Toyota can prevent a demise like the one Sony experienced remain open questions.

CONCLUSION

Although recalls are not new for automobile companies, including Toyota, the recalls since 2009 were the largest in Toyota's history. The historic crisis created by these recalls raised many questions about the openness of the company. In particular, the delay by the company's president Akio Toyoda in providing explanations raised public doubts about the company's sincerity. The crisis also exposed the power of social media. SNSs had recently gained prominence in rallying audiences around hot social issues, and Toyota seemed to have realised their importance early on. Based on the data collected on Facebook, Toyota did well; even during the crisis, Toyota managed to add fans to its Facebook site. However, observing one's own performance on an SNS does not tell the whole story. Toyota must carefully watch its competitors. As shown in this analysis, the Korean automobile company Hyundai is adding fans to its SNS at the fastest rate. There must be a reason for this growth, and Toyota will be challenged to find it. Another challenge to Toyota, as highlighted in this study, is the digitisation of automobile functionalities, which is increasing rapidly. Even the recall problems in Toyota vehicles were believed to be related to digitisation. The solutions for these problems are software issues. This is where SNSs can again play a key role. Apple used SNSs and software applications (called apps, in Apple's terminology) to unseat Sony from the music gadget industry. Unless Toyota realises this, it could face serious challenges to its supremacy in the world automobile industry from existing or new automakers.

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REFERENCES

- Chang, S-J. (2008). *Sony vs Samsung*. Hoboken, NJ: John Wiley.
- Charette, R. N. (2009). This car runs on code, *IEEE Spectrum*, February 2009, Retrieved 30 August 2010, from <http://spectrum.ieee.org/green-tech/advanced-cars/this-car-runs-on-code/2>
- Chen, Y., Fay, S., & Wang, Q. (2011). The role of marketing in social media: How online consumer reviews evolve. *Journal of Interactive Marketing*, 25(2), 85–94.
- CNN Online. (2010). U.S. official: Toyota pressured into recall, 2 February. Retrieved 4 April 2010, from <http://articles.cnn.com/2010-02-02/>
- Ghannam, J., (2011). *Social media in the Arab world: Leading up to the uprisings of 2011*. Washington, DC: Center for International Media Assistance (CIMA).
- Henry, A. (2011). YouTube hits 3 billion views per day, 48 hours of video uploaded per minute, Retrieved 3 January 2012, from <http://www.geek.com/articles/news/>
- Hosoda, T. (2009). Will founding-family Toyoda again help auto giant Toyota revitalize its business? *Nikkei Business*, 13 January.
- Knoke, D., & Yang, S. (2007). *Social network analysis (Quantitative applications in the social sciences)* (2nd ed.). Los Angeles, CA: Sage Publications.
- Magee, D. (2007). *How Toyota became #1*. New York: Penguin Group. *CBS News*. (2010). U.S.: 52 deaths reportedly tied to Toyota, 2 March. Retrieved 4 April 2010, from <http://www.cbsnews.com/stories/2010/03/02/business/main6258603.shtml>
- MH Group (2009). Luxury car brands not tapping full potential of social media, Retrieved 2 January 2012, from <http://www.slideshare.net/MHGroupCommunications/luxury-auto-social-media-use-study-mh-group-communications>
- Minto, R. (2010). Toyota's recall – the details. *Financial Times*, 5 February.
- Morgan, J. M., & Liker, J. K. (2006). *The Toyota product development system: Integrating people, process and technology*. New York: Productivity Press.
- National Highway Traffic Safety Administration (NHTSA). (2010). The National Traffic and Motor Vehicle Safety Act (originally enacted in 1966 and now recodified as 49 U.S.C. Chapter 301). Washington DC: Author.
- NYSE (New York Stock Exchange) (2010). The New York Stock Exchange. Retrieved 1 March 2010 to 30 April 2010, from <http://www.nyse.com/>
- Ohno, T. (1988). *Toyota production system: Beyond large-scale production* (1st ed.). Portland, OR: Productivity Press.
- Qualman, E. (2009). *Socialnomics: How social media transforms the way we live and do business*. Hoboken, NJ: John Wiley.
- Rajasekera, J. (2010). Why Apple, not Sony? *Effective Executive*, 13(2), 16–23.
- Sakaki, T., Okazaki, M., & Matsuo, Y. (2010). Earthquake shakes Twitter users: Real-time event detection by social sensors. *Proceeding of the 19th International World Wide Web Conference*, Raleigh, North Carolina, 26–30 April, pp. 851–860.
- ScienceDaily (2010). Investigations into unintended car acceleration should include engineers, experts argue, 23 July. Retrieved 30 August 2010, from <http://www.sciencedaily.com/releases/2010/07/100723203955.htm>

- Time Magazine* (2010a). Toyota's blown engine, 22 February, 12–16.
- Time Magazine* (2010b). NASA to probe Toyota acceleration problem, 30 March, 26.
- Toyota Motors Corporation (1961). Building quality into process. Retrieved 5 April 2010, from <http://www2.toyota.co.jp/>
- Toyota Motors Corporation (2009, February). Supplier CSR guidelines. Retrieved 30 April 2010, from http://www.toyota.co.jp/en/csr/relationship/pdf/supplier_csr_en.pdf
- Toyota USA (2010a). Toyota in the United States. Retrieved 3 May 2010, from <http://pressroom.toyota.com/>
- Toyota USA (2010b). In *Facebook* [Fan page]. Retrieved 15 March 2010 to 16 May 2010, from <http://www.facebook.com/toyota?v=wall>
- WardsAuto (2010). Auto data, auto news and analysis for the worldwide providers of cars and trucks. Retrieved 30 April 2010, from <http://wardsauto.com/>
- Whitfield, K. (2002). Microscopic manufacturing at Motorola. *Automotive Design and Production*, 4 June. Retrieved from <http://www.autofieldguide.com/articles/microscopic-manufacturing-at-motorola>.